RADCOM USER REVIEW

Alinco DR-150E 2m FM Transceiver

Reviewed by RSGB HQ Staff

THE ALINCO DR-150E is a tiny, but powerful, 2m FM transceiver which also covers the 70cm band on receive. Its features include 100 memory channels, full scanning facilities, 'Channel Scope' (a front-panel panoramic display of seven channels), 1200 / 9600BPS packet connection and CTCSS tone encoder fitted as standard. There are three power output levels: 50W, 25W and 10W, set from a front panel push button.

The transceiver comes complete with a microphone, which contains UP / DOWN and LOCK buttons, a power lead, mobile mounting bracket, a 64-page handbook, a separate schematic diagram and a handy 9 x 5.5cm 'crib' card - an *aide memoir* for setting the operating functions (see below).

Both the antenna and power are connected via 'flying leads' emerging from the rear of the set which are terminated by a power connector (with 15A fuse in the positive lead) and SO239 connector for the antenna. This helps to make the set quick and easy to remove from the car, thus foiling potential thefts. The power cable supplied is long enough to connect directly to the battery and route around the car interior to the mounting position, and is fused with 15A fuses in both the positive and negative leads. These are in addition to the fuse fitted between the power connector and the set itself: an important safety feature. It is worth pointing out that since the set draws 10A when transmitting at high power, no attempt should be made to power it from the car cigarette lighter socket.

The set is really tiny for such high power output - consequently a large proportion of the overall size is made up of the heat-sink. It is so light (800g) that it can easily be pulled around the desk by the microphone lead, or when in the car it is liable to fly off the parcel shelf when negotiating roundabouts, so to avoid damage to both the set and vehicle occupants it is important to ensure that it is properly installed!

CONTROLS

THE CONTROLS consist of a small VFO / memory channel knob, even smaller volume and squelch knobs, a row of nine buttons to control the various functions, and tiny on / off and high / medium / low power buttons. All controls (other than the volume and squelch knobs) have a dual function, with many of the buttons having three or even four functions, depending on whether the 'F' (Function) button is pressed and - if so - for how long. From this it can be inferred that to master the operation of the Alinco DR-150E could take some considerable time, although in practice most users would simply use this multiplicity of functions to tailor the rig's operation to their own liking, and once set they can be forgotten. If you do want to change the operating parameters, however, the 'crib' card would mean that you would not have to carry the instruction book around with the rig.

FREQUENCY COVERAGE

AS SUPPLIED, the transceiver covers 144 - 146 and 430 - 440MHz FM on receive. However, by pushing a combination of front panel keys, the receiver will cover 108 - 174, 430 - 512 and 800 - 999MHz, and in both FM and AM modes. The transmit side will still only operate on 144 - 146MHz FM, and it should be noted that the receive specifications are guaranteed within the amateur bands only.

DR-150T/E REFERENCE KEY			
KEY	F ON	F BLINKING	KEY+POWER ON
F	S METER SQUELCH	SQUELCH TIMER	ALL RESET
V/M	WRITE MEMORY CH	CLEAR MEMORY CH	MEMORY RESET
MHz	CHANNEL STEP	AM/FM(T)	CHANNEL DISPLAY
BAND	SHIFT REVERSE	TIME OUT TIMER	LITZ ON/OFF(T)
SCAN	MEMORY SKIP	SCAN TYPE	DTMF DURATION
SRCH	BELL ON/OFF	NOT USED	
PRI	TONE SQUELCH	DSQ	DTMF DELAY
VFO	SHIFT, SPLIT	VFO RESET	NOT USED
CALL(T)/TONE(E)	KEY LOCK	BEEP ON/OFF	CALL(T)/TONE(E) SETTING
H/L	DIMMER	ATT ON/OFF	

The useful card supplied to help the memory if you wish to re-program the set.

As supplied, the transceiver tunes in 12.5kHz steps when in VFO mode, ie it requires two 'clicks' per channel, but this can be changed to the standard 25kHz channel spacing, or indeed to any of eight possible tuning steps, by one of those user-definable programming functions already referred to.

OPERATING

ONCE PROGRAMMED with 25kHz channel spacing and the standard repeater and simplex channels, the set was very easy to operate. There are several scan modes which are initiated by pressing either the SCAN button on the front panel, or the UP or DOWN buttons on the microphone for more than 0.5 second. The factory default is 'Timer scan' whereby the scan stops when finding a signal and then resumes five seconds later. In order to stop it from resuming scanning, either the 'F' button on the front panel or the PTT switch must be pushed within the five seconds. This was found to be somewhat inconvenient and the 'Busy scan' mode, whereby the scan stops after finding a signal and then resumes two seconds after the signal disappears, was preferred.

There are dual 'A' / 'B' VFOs, as found in most HF transceivers, with the front-panel VFO button toggling between them, but little use was found for dual VFOs since frequency shift operation (for working through repeat-

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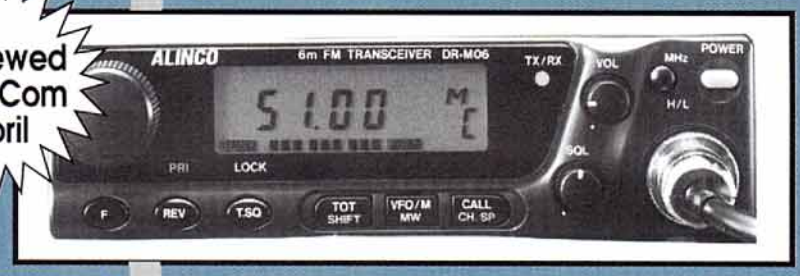
Reviewed Rad Com April



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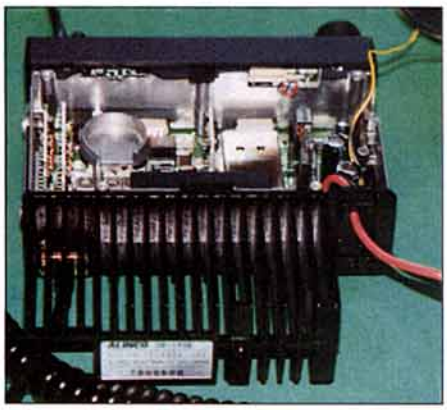

Note the size of the heat-sink required to keep the 50W PA running cool.

ers) does not require the use of two VFOs, but can be achieved on just one. In VFO mode, switching from a simplex to a repeater frequency involves several button pushes to set the 600kHz shift, and the process has to be repeated when switching back from repeater to simplex use. This is inconvenient, and especially so when mobile, but can be overcome by programming all the usual simplex and repeater channels into the set's memory and using the rig in 'memory mode' rather than 'VFO mode'. To initiate the 1750Hz toneburst in order to open a repeater, the front panel TONE button must be pressed; it would be more convenient to have the toneburst available on the microphone PTT switch. However, tone bursts are being used less and less now as CTCSS use increases.

When scanning in memory mode, empty memories are ignored, enabling all the standard simplex and repeater channels (plus any favourite 'spot' frequencies in the all-mode section of the band) to be scanned very rapidly. In VFO mode an upper and lower frequency limit can be set for scanning, so that, for example, the CW and SSB sections can be ignored.

CHANNEL SCOPE

THE 'CHANNEL SCOPE' function will show you activity on seven channels at a time by means of a front panel panoramic display. In VFO mode, the display simply shows activity on the channel selected and on the three channels above and below it. In memory mode, if you are tuned to, say, channel 35, the Channel Scope will show you activity on whatever has been programmed into channels 32 - 38. Only the audio from the selected centre channel is audible (in this example, channel 35). These channels could be any frequencies, and need not be in frequency order, so that you can visually monitor for activity on, say, SU21, S22, your 2m club net frequency, S20, your local 2m and 70cm repeaters, and your favourite 2m simplex channel simultaneously, while listening to the audio on S20 at the same time. This audio is muted for a short duration while the Alinco checks the activity on the other channels every five seconds.

ON TRANSMIT

CALLING CQ with 50W on simplex channels can bring forth replies from stations which cannot be copied readily, particularly if - like the car used for the tests - the vehicle is not well suppressed and puts out a lot of 'hash' on 2m!

That is not to say the Alinco DR-150E is in any way insensitive, merely to point out that many stations run only 5W or 10W to perhaps inefficient antennas, and when using this transceiver you may well be heard better than you can hear.

Nevertheless, the 50W output level did permit continued access to repeaters which were providing only 'scratchy' reception when travelling through poor locations, allowing QSOs to continue under circumstances where the signal into the repeater would have been lost completely if using a transceiver of lower power output. This was particularly useful for contacting locals on my 'home' repeater when beyond its primary coverage area. However, beware of opening two or more repeaters simultaneously and causing QRM to other users when using high power!

Simplex QSOs over long distances with well-equipped stations were commonplace - in short, almost any station that could be heard could be worked. The 'low-power' position of 10W was more than adequate under most circumstances, and the 25W medium power level was hardly used: 50W / 10W / 1W may have been a more useful set of power levels than 50W / 25W / 10W.

The set supplied was not tested on packet. However, there are separate connections for 1200BPS and 9600BPS packet operation. The DR-150E costs £349.95 and is available from Waters and Stanton Electronics, 22 Main Road, Hockley, Essex SS5 4QS, tel: 01702 206835, fax: 01702 205843. ♦

MANUFACTURER'S SPECIFICATIONS

General	
Frequency range	Tx / Rx: 144.000 - 145.995MHz*
	Rx: 430.000 - 439.995MHz*
Modulation	F2, F3 (FM)*
Antenna impedance	50Ω
Supply voltage	13.8VDC
Current consumption	Tx (high power) 10A / Rx 0.6A
Frequency stability	plus / minus 10 PPM max.
Dimensions	140(W) x 40(H) x 129(D)mm
Weight	approx 800g (body only)
Microphone	EMS-5A
Operating temperature	-10°C - +60°C
Transmitter	
Power output (approx)	High 50W / Mid 25W / Low 10W
Modulation system	Reactance modulation
Spurious emission	not more than -60dB
Max deviation	plus / minus 5kHz
Distortion at 60% modulation	not more than 3%
Microphone impedance	2.2kΩ
Receiver	
Receiving system	Double conversion superheterodyne
IF	First 45.1MHz / Second 455kHz
Sensitivity (12 dB SINAD)	2m band -16dBm or better, 70cm band -10dBm or better
Selectivity	-6dB: 12 kHz or more, -60dB: 28kHz or less
Squelch sensitivity	-20dBm or better
AF output	1.5W
AF output impedance	8Ω

Note: Specifications guaranteed in the amateur band only.
* See text.